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REPORT ON THE SUMMER 1966 INDUSTRIAL ARTS INSTITUTES.

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DURING THE SUMMER OF 1966, THE U.S. OFFICE OF EDUCATION ENGAGED THE CONSORTIUM OF PROFESSIONAL ASSOCIATIONS TO CONDUCT A STUDY OF THE NATIONAL DEFENSE EDUCATION ACT (NDEA) INDUSTRIAL ARTS INSTITUTES THEN IN PROGRESS. TO COLLECT INFORMATION FOR PLANNING FUTURE INSTITUTES, A COMMITTEE MEMBER VISITED EACH INSTITUTE FOR 2 DAYS, AND UTILIZED A LIST OF SUBJECTIVE CRITERIA, QUESTIONS DIRECTED TO THE INSTITUTE DIRECTOR AND THE PARTICIPANTS, AND A QUESTIONNAIRE COMPLETED BY THE PARTICIPANTS AT THE END OF THE INSTITUTE. THE COMMITTEE ASSUMED THAT (1) FUTURE INSTITUTE DIRECTORS WERE INTERESTED IN LEARNING OF SUCCESSFUL PRACTICES, PROCEDURES, AND PITFALLS, AND (2) THE U.S. OFFICE OF EDUCATION WAS CONCERNED WITH THE EFFECTIVENESS OF NDEA TITLE XI INSTITUTES. SOME OF THE 31 RECOMMENDATIONS WERE -- (1) DIRECTORS SHOULD WEIGH THE ADVANTAGES AND DISADVANTAGES OF ASSUMING TEACHING RESPONSIBILITIES BECAUSE OF THE UNPREDICTABLE DEMANDS UPON THEIR TIME, (2) DIRECTORS SHOULD INSURE THAT INSTRUCTIONAL, LIVING, AND RECREATIONAL FACILITIES BE AVAILABLE, (3) SOME FORM OF WEEKLY EVALUATION SHOULD BE CONDUCTED TO AID PARTICIPANTS AND STAFF, (4) GUEST SPEAKERS SHOULD BE FAMILIAR WITH THE OBJECTIVES OF THE INSTITUTE, (5) INDUSTRIAL VISITS SHOULD PROVIDE FOR STUDY AND NOT BE JUST TOURS, AND (6) INSTRUCTION SHOULD REFLECT THE LATEST AND BEST IN EDUCATIONAL THEORY. (EM)

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REPORT ON THE
SUMMER 1966 INDUSTRIAL ARTS INSTITUTES

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1966

FOREWARD

This report is one of a series presenting the results of studies of NDEA Title XI and Arts and Humanities Foundation institute programs and selected institute-associated activities conducted in 1966 by the Consortium of Professional Associations for the Study of Special Teacher Improvement Programs (CONPASS) for the U.S. Office of Education under Contract No. OEC2-6-001005-1005 and four subcontracts.

The Consortium was formed in May 1966 by the five associations which assessed the 1965 Title XI institute program – the American Historical Association, the Association of American Geographers, the Department of Audiovisual Instruction (NEA), the International Reading Association, and the Modern Language Association of America. Invitations to membership were subsequently extended to, and accepted by, the American Economic Association, the American Industrial Arts Association, and the American Political Science Association. Four members at large provide liaison with the arts and humanities, psychological tests and measurement, educational psychology, and teacher education specialists.

The objectives of CONPASS are to: provide a coordinated assessment of the effectiveness and impacts of institutes and other types of special teacher training programs; propose means of improving such programs; and provide a medium for dialogue among the professional associations and leading scholars of the several subject content disciplines and fields represented on its Board. These reports constitute a portion of the program developed to fulfill those objectives. It is hoped that they will prove useful to educators in general as well as to directors and prospective directors of institutes, officers of the U.S. Office of Education, and legislators and administrative officials of the Federal and States' Governments in their joint efforts to improve the quality of American education at all levels.

We take this opportunity to thank the consultants who conducted the studies and authored these reports for their diligent and conscientious performance of complex and exacting assignments.

Kenneth W. Mildenberger, Chairman William H. Wake, Director

PREFACE

Title XI of the National Defense Education Act was extended in November 1965 to include in its Institute Program teachers and supervisors of economics, civics, and industrial arts. The program is administered by the Office of Education and is designed to provide qualified participants with such advanced study as will be of immediate use to them in their teaching and professional activities, including study in the use of new materials.

In January 1966 twelve institutions of higher education were invited to submit proposals for Industrial Arts Institutes to be held during the summer. Contracts were awarded for five institutes as follows:

Northern Illinois University, DeKalb, Technical Specialty: Numerical Control, 30 teachers, grades 10-12, Open, June 13 to August 5; George W. Senteney, Director

University of Maryland, College Park, Advanced Study of Industry, 30 teachers, grades 7-9, Maryland and Open, June 13 to July 29; Donald Maley, Director

Eastern Michigan University, Ypsilanti, Curriculum Development in Secondary School Industrial Arts, 24 teachers, grades 7-12, Open, June 27 to August 5; H. James Rokusek, Director

State University College, Oswego, Field Study of American Industry, 30 teachers, grades 7-12, Northeastern States, July 3 to August 12; John Kowalski, Director

University of North Dakota, Grand Forks, Contemporary Content and Teaching Methods for Small Industrial Arts Programs, 30 teachers, grades 7-12, Upper Midwest, June 20 to August 12; Alvin E. Rudisill, Director.

These five institutions received over 6,000 letters requesting information and application forms for their Industrial Arts Institutes. Over 3,100 applications were received and screened by the directors and their staffs. The five schools selected 144 participants and 95 alternates.

It is estimated that less than one-half of one percent of the industrial arts teachers in the United States were able to participate in the initial Title XI NDEA Industrial Arts Institutes.

During the summer of 1966, the U.S. Office of Education engaged the Consortium of Professional Associations (CONPASS) to conduct a study of the institutes then in progress. A three-man committee was hastily organized to observe and report on the Industrial Arts Institutes under the general guidance of Dr. William H. Wake, Consortium Director.

Members of this committee were:

Principal Consultant –
Donald F. Hackett, Professor and Chairman
Industrial Arts and Technology Division
Georgia Southern College
Statesboro, Georgia

Associate Consultant –
Joseph A. Schad, Professor and Head
Industrial Arts Education
Virginia Polytechnic Institute
Blacksburg, Virginia

Educational Evaluation Consultant –
Robert E. Stake, Associate Director
Center for Instructional Research and
Curriculum Evaluation (CIRCE)
University of Illinois
Urbana, Illinois

Each institute was visited for two days by either the Principal or Associate Consultant. During these visits the consultants utilized a list of somewhat subjective criteria to aid them in observing the conduct of the institutes, querrying the directors and participants, and in general attempting to learn as much as possible that might be of value in planning future institutes.

The consultants wish to emphasize the fact that they considered themselves observers and information gatherers rather than evaluators. Some judgments were made by the consultants, however. These were, in most cases, supported by the opinions (evaluations) supplied by the participants through a standard questionnaire designed and distributed for use in institutes of all disciplines by the U.S. Office of Education. The questionnaire was distributed to each participant during the final day or two of the institute and mailed directly to the consultants. Directors and staffs did not see the completed forms.

In preparing this report, the consultants were guided by the following assumptions:

1. That industrial arts teacher educators who anticipate providing future institutes will be interested in learning of:

   (a) Successful practices and procedures (strengths),

   (b) Pitfalls to avoid.

2. That the U.S. Office of Education, through CONPASS, is concerned with ascertaining the effectiveness of the institute concept as implemented under the conditions of Title XI.

The report that follows represents the consensus of the consulting team, It is intended to provide a measure of a sort, but, most important to the profession, it is meant to provide assistance to those who will offer future institutes.

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PART I
CHARACTERISTICS OF THE INDUSTRIAL ARTS INSTITUTES

Objectives

The U.S. Office of Education publication, A Manual for the Preparation of Proposals (OE55042), states that:

> For institute purposes, industrial arts may be defined as general education which deals with the principles and concepts of industry and technology including the organization, materials, occupations, processes, products, and related problems of industry.
>
> The Manual further states that,
>
> The objectives of these institutes is to strengthen and to bring up-to-date the competency of teachers and supervisors in the professional and related subject matter areas of industrial arts.

All institutes shared the primary goal. Each institute also proposed several specific objectives compatible with this goal. In some institutes, however, certain specific objectives were emphasized more than others. Other institutes were, apparently, highly successful in attaining all of their objectives. Tables I and VI report the participants' responses to questionnaire items associated with the successful attainment of the goals of the institutes. As shown in Table VI, 93.0 percent of the participants rated the institutes "good" or "outstanding" in their effectiveness in improving teacher competency.

As can be seen in Table I, there was no indication that the institutes did not devote some time to each of their stated objectives. The differences of emphasis on certain objectives was logically a reflection of staff philosophy, strategies of instruction, and other variables. There were a few reports from participants in one institute which indicated that they had not fully understood the nature of the institute for which they made application. For this small group, the institute experience may have been of limited value.

Most of the institutes definitely contributed to a positive attitude toward the form of industrial arts identified in the definition above. However, a major point still to be resolved by the profession deals with the philosophical question of the depth to which a general education study of industry and its technology should extend. The varying points of view were evident in both the content and conduct of the institutes. This dilemma exists in most subject-matter fields today.

One highly important purpose of an institute, though not specifically identified by the institutes, was observed. All of the institutes evidenced a respectable effort to motivate, encourage, and lead the participants into some continuing form of upgrading or self-education after the institute period. Bibliographies, brochures, pamphlets, and a variety of handouts

were in evidence both as displays and in the participants' possession. Some participants joined professional organizations and several reported they intended to continue with graduate studies.

Curriculum

Curriculum content under the NDEA Institute Program was to be designed to "strengthen and bring up to date the competence of teachers and supervisors . . . of industrial arts." Emphasis was, therefore, to be placed upon substantive work in industrial arts per se and in the teaching of industrial arts.

The institutes were to be closely integrated. All phases of the substantive work were to be coordinated and attention was to be focused upon the many problems which industrial arts teachers encounter in the field.

Participants in the institutes were expected to make more progress in improving their qualifications as teachers of industrial arts than they would be spending equivalent periods of time in separate graduate-level courses. The participants were to be the focal point around which the institutes rotated. Programs were to be designed to meet their needs. Schedules were to be arranged so that participants could derive the utmost from their studies. Remedial work was to be provided as necessary. In short, the institutes were created for the participants and instructors were urged to adapt their instruction to the needs, capabilities, and backgrounds of their audience.

The industrial arts institutes fell into three categories: (a) those organized to provide a study (knowledge) of industry and/or its technology; (b) those organized as a study of the curriculum content and methods of providing a study of industry and its technology; and, (c) a combination of (a) and (b). One institute was based on a study of a highly specialized phase of technology. One was concerned with organization, administration, curriculum content, and methods of industrial arts teaching. Three institutes were a combination study of industry and its technology and of educational methodology.

The consultants hold that industrial arts has an identifiable body of knowledge and that the best of educational methods are necessary for its effective transmittal. Both aspects are deserving of serious study. Considering the purposes of the institute program, however, it would be interesting to know if the study of curriculum construction, educational methodology, and the like is more fruitful when treated separately or when treated as an integral part of an industrial-technological study. The ratings supplied by the participants indicate that they preferred the institutes providing an integrated approach (Tables V, VI). Admittedly, factors other than organization of the institute could have been more important in motivating this reaction from the participants.

Most institute curricula were developed to provide for the ubiquitous needs of industrial arts teachers as the individual staffs perceived them. (The conditions under which these institutes came into being precluded any other procedure.) Individual teacher (potential participant) needs were

assumed to be provided for through the participant selection process. It was assumed that only persons with a genuine interest in an institute would make application to enroll and that the participant selection procedures would finally identify the individuals who would benefit most. Consequently, very little, if any, effort was expended in ascertaining the needs of participants or in providing any form of remedial instruction for those who found the pace or the subject matter too difficult. There were a few participant comments that the instruction provided was, in some instances, impractical, not too effective, or not too well suited to their teaching situations (Tables I and V). The consultants believe that some of these comments were provided by participants who were reluctant to accept the degree of change required to implement the program identified in the institutes.

An adverse criticism of the institutes was that the participants were worked too long and too hard. Over one-half of the participants indicated that they did not have enough free time (see Tables IV f). In one instance the pressure lasted until the final week or two of the institute. At this point the pace became too leisurely and the criticism became one of "too little to do." Most of the participants seemed to agree, however, that if an institute was to err one way or the other, they preferred that it do so by providing too much work rather than too little. Also in this category, individual study time was inadequately provided for in most of the institutes (Table IV e).

In general, the participants interviewed held that so much material was presented in such a short time that they had difficulty in digesting it. Opinions volunteered were about equally divided as to the merits of increasing the length of institutes or keeping them as they were. Married participants, separated from their families, contended that six week institutes were long enough. Single participants and those accompanied by their families had other reasons for holding to a six week institute – the main ones being dissatisfaction with housing and the limited recreational-social activities (Table III f and g). Those who indicated that the institutes should be of longer duration were primarily interested in having more time to think and absorb the instruction.

All of the institute directors and their staffs seemed to be aware of the great quantity of work expected of the participants. Most agreed that if they had it to do over, they would make some changes, but just what could be eliminated to make the work less burdensome while still maintaining sufficient depth and breadth was a difficult question. Each institute curriculum was obviously designed to permit the attainment of certain goals. Each was a commendable effort but could probably have been improved if it had provided a greater degree of flexibility.

While existing catalog course numbers and titles were generally used to identify the institutes' offerings, there was no indication that the various curricula were anything but carefully integrated offerings. New materials in the forms of new knowledge, new methods, and new teaching devices were much in evidence.

Most of the institutes were concerned more with concepts and ideas than with facts. Unfortunately in some of the institutes the prevalent college tradition of administering tests to obtain an objective basis for assigning letter grades resulted in some emphasis on facts per se. In one institute,

extensive outside readings were assigned. Tests were given covering these readings, but they were seldom discussed. Many of the participants at this institute reported that they saw little value in this effort.

Without exception, participants interviewed by the consultants reported that they had learned much in the institutes and that they intended to introduce at least some of it into their individual teaching situations. Few indicated that they would make sweeping changes before they had a chance to experiment with the ideas and innovations developed in the institutes.

A statement written by one participant on his questionnaire seems to reflect the attitude of the vast majority: "Information made available this summer was priceless. In no way could I have acquired this knowledge through other means."

Instructional Strategies

Instructional strategies encompass several facets of the institute program including: (a) instructional methods and techniques, (b) use of educational media, and (c) schedules.

The U.S. Office of Education Manual states that:

> *Although an institute's major emphasis will be on the appropri*ate subject matter, study of the use of new materials is encouraged. Such materials may include those related to modern communication (e.g., Tele-Lectures, Programed Instruction), as well as to new printed and curriculum materials . . . Improvement as teachers or specialists is the goal rather than working for credit . . . Laboratory activities and experiences should be encouraged in order to enable participants to gain the necessary insights into teaching procedures and techniques and so bridge the gap between theory and practice.

(a) Instructional methods and techniques. For the purpose of this report, the term "instructional methods" is defined as those orderly procedures by which learners are directed in developing skills and habits, and in acquiring knowledge, understandings, and attitudes. The term "instructional techniques" is defined as those refinements of presentation which the individual teacher employs to make instruction more effective.

Instructional methods employed at the various institutes included practically everything from the directed-discovery method to the direct and detailed methods of teaching. One institute was organized to demonstrate several methods and approaches. The most prevalent teaching method used and abused was the lecture. Participant responses concerning the relative amount of time apportioned for several methods are shown in Table IV.

Approximately one-half of the participants rated the amount of lecture time as "about right." Slightly less than one-half rated it as "too much." Over two-thirds of the participants in two institutes rated this method as occurring "too much" (Table IV a). This might be interpreted to mean that

the participants would have preferred to spend more time discussing and/or applying the information in seminars and laboratories.

Approximately three-fourths of the participants rated the quality of institute faculty presentations as "good" or "outstanding." In two institutes, this group received these ratings from more than 93.0 percent of the participants. Two other institute faculties were rated "fair" to "poor" in this category by approximately one-third of their participants (Table IIa).

The quality of presentations by guest speakers was rated slightly higher than that of the institute faculties (Table II b and a). This speaks well for the care used in selecting guest speakers.

Several very frank comments concerning the quality of instruction and the ethical-professional behavior of a few institute faculty members were reported in the questionnaires and to the consultants. Typical comments were: Relations between faculty were poor; poor cooperation among faculty; one poor faculty member; treated like students, like children; profanity used; poor teaching technique; unable to motivate; instructor not well prepared; poor response to participant questions; some repetition.

The majority of institute faculty members were, however, of top quality and the participants were quick to point this out. Typical comments were: Instruction was related to needs; tops; did more than one would expect; good faculty member; top people in the field; democratic presentations; not dogmatic; free thought permitted.

(b) Use of Educational Media. Audiovisual presentations were rated "about right" by two-thirds or more of the participants in each institute (Table IV b).

Every institute used audiovisual equipment such as the overhead, stripfilm, slide, and motion picture projectors. Tapes, opaque projectors, closed circuit television, charts, displays, models, etc. were evident in several institutes. In some institutes, the participants were given materials that had been prepared so that overhead projectuals could be made from them.

Laboratory and seminar sessions and the like were rated "not enough" by one-fifth to approximately two-thirds of the participants in the various institutes (Table IV c). Furthermore, there was a direct relationship between these ratings and the ratings given for the quality of the presentations made therein. Those institutes rated lowest by the participants for the amount of time apportioned for laboratory, seminar, and like experiences were also rated lowest for the quality of presentations made in the conduct of these sessions. Those institutes rated highest in time allotted also received the highest ratings on the quality of presentations therein (Tables IV c and II c).

Field trips were reportedly well chosen in all but one of the institutes (Table IId). Table IV d shows that the majority (60.1 percent) of the participants believed that the amount of time apportioned for field trips was "about right." Almost all (90.0 percent) of the participants in one institute were of the opinion that "not enough" time was allotted for field trips

(Table IV d). Responses supplied in another institute ranged from "not enough" to "too much," to reinforce the cliche "you can't please everyone."

Several excellent field trips were reported by the institute participants, but there were several pertinent adverse criticisms. Those reported most frequently were: Should be more field trips; more orientation needed prior to trip; should be more representative, more variety needed; should be better organized – not tourist trips; industries should be made aware of our needs and interests; too much time spent in travel; more time needed; institute should bear cost of field trips. (Where field trips required overnight lodging away from the campus, participants paid rent in three places: at a motel or hotel, at the campus dormitory, and at their homes.) Table II e shows the participants' ratings of the conduct of field trips. Approximately three-fourths thought they were "outstanding" or "good."

Institute faculties commonly employed lectures complemented with audiovisual materials and/or discussions whereas guest speakers most frequently resorted to lectures only. One institute employed a telephone-lecture. Another institute provided an economist and an educational psychologist. These specialists participated as observers and discussants to lend both breadth and depth to the topics of study. The participants were highly complimentary of the contributions made by these people. The specialists were equally complimentary of the director's recognition of the significance of something more than a myopic study of industry and its technology. They (the specialists) were, however, hesitant to recommend that a great number of similar specialists be included in any one institute. Most of the institutes employed a laboratory experience of some kind to reinforce the instruction. In some cases, however, persons not sufficiently qualified were employed to assist in the laboratories and the participants were somewhat critical.

(c) Schedules. Schedules of the various institutes provided for class, laboratory, study, and rest periods. However, in the opinion of the participants, rest and study periods were generally too short. Participants reported that their informal group discussions were of considerable value to them, and that their importance should be recognized and provided for. Breaks of 15-30 minutes were considered insufficient. Study periods of less than two hours duration were also held to be too short to permit any real accomplishment.

Some institutes were reported to have provided 6-8 hours of lecture a day for one or two weeks at a time. This may indicate a conscientious institute faculty, but causes one to question their understanding of the psychology of learning. Typical participant comments concerning the time allotted were: Provide more time for inter-group reactions; more time for independent study; more committee work; fewer writing assignments; more laboratory experiences; more time on use of materials; too much work for credit allowed; need more time for preparing assignments; need more time to attain goals; need more time for research; need more time to cover subject. (Also see Table IV e)

Most of the institutes provided the participants with some form of class schedule so they would know what to expect day by day. In some institutes this schedule was little more than a list of the major topics to be

dealt with each day. In others, no effort was made to carefully detail the activities of each day. In general, the participants were anxious to have schedules for a full week, sufficiently detailed that they could make plans for weekends and an occasional evening with family or friends.

Evaluation and Course Credit

Graduate credit was granted in all of the institutes. Some stated that they had no use for it, but others planned to apply it towards another degree. Because of the great number of applicants for each institute, selecting participants who met the requirements for admission to graduate study was no problem. Credit allowed for the institutes was determined empirically – so many hours and weeks of work were worth so many hours of credit. No institute reported any problems in having such credit approved. As stated previously, all schools used existing course numbers to identify their institute offering.

Tests of various kinds were used in the institutes. One institute used a commercially available test (pre-test) at the opening of the institute to ascertain the participants' knowledge of industry at that time. The test was again administered at the close of the institute. The amount of knowledge gained served as a factor in assigning marks. This test seemed to fit the nature of this institute very well. Another institute used tests prepared to measure the thoroughness with which the participants did their outside reading. These scores were used in determining institute grade marks.

Since credit was given, grades had to be given. Unfortunately, this tradition made for some unnecessary busy work in the opinion of the participants. Tests were prepared so that scores could be obtained; reports were assigned so that evidence could be accumulated; notes were scanned (weighed) by instructors so that the better students could be identified. While the consultants have no way of knowing, they believe it a fairly safe guess that no 1966 Industrial Arts participant received a grade lower than "B." As one director pointed out, the best people out of more than 3,100 applicants were chosen and one would hardly expect them to do poorly. Most directors indicated that they anticipated assigning only A's and B's. The staffs, they reported, would discuss each participant, his effort, attitudes, reports, test scores, cooperation, etc., and arrive at one of the two grade marks. The basis for assigning grades was not divulged to the participants at some institutes; at others it was fully described.

Since growth in knowledge was a primary goal of the institutes, it would seem difficult to justify the lack of objective evidence collected for the purposes of assigning grades. However, considering the selectivity of admission to the institutes and the fact that even the best tests reveal only a small portion of the learning accomplished, it would seem that the procedures used are justifiable.

At least one institution awarded the participants a certificate (NDEA Institute for Advanced Study of Numerical Control of Machine Tools and Digital Plotters) at the conclusion of the institute. As a less serious gesture of both sympathy and appreciation, wives were also issued a certificate at this time (Certificate of Endurance).

Staff Structure

Staff organization, provisions for planning and teaching, and the roles of the directors and co-directors seemed to be well defined. Some directors taught a portion of the time; others did no teaching. Furthermore, no consensus was obtainable on the merits or demerits of a director teaching or not teaching. Some directors contended that administrative duties prevented their participating in the instructional program; others thought they had a contribution to make and that they did a better job of administering by also teaching a part of the material. In at least one instance an instructor took expection to the distinctions between his work and that of his nonteaching director. He believed that he did the work and his director received the credit and the greater financial reward.

In most instances, compensation for institute staff was reported as satisfactory. However, institutional policies governing the compensation of certain teaching personnel (part-time, assistant instructors, etc.) may prove unjust when applied to the matter of determining full-time institute teaching salaries.

Most institutes had sufficient clerical help except when the participants were required to submit reports. At this time, typists and typewriters were at a premium. Many participants complained of having to spend hours typing reports when they could have better spent the time in study.

Most institute directors complained of a serious shortage of competent manpower to read the applications and make selections. One director estimated that it required about 20 minutes to read and evaluate an application. With over 800 applications for his institute he was required to solicit reluctant (unpaid) volunteers to help. Other directors commented on the trial and error method by which they learned what to include in letters and brochures to introduce their institutes.

Directors and staffs of each institute reported that their relationships with their departments, other institutes on campus, and the university administration were most satisfactory. At least one university president, a vice president, and several deans made appearances at their respective institutes to welcome and otherwise address the participants.

Training Facilities and Social Activities

The Manual for the Preparation of Proposals states that:

> The sponsoring institution must provide suitable classroom and office space for the director and his staff as well as adequate office equipment . . . It must also be able to arrange for and to provide room and board fkcilities required by the participants . . . near one another... The institution is also responsible for providing library and laboratory facilities, as well as for making easily available the necessary reference books and other required materials . . . In general participants are expected to attend institutes unaccompanied by dependents.

Table III shows the participants' ratings of the physical facilities at the five institutes. Approximately two-thirds of the participants rated the

library facilities as "good" or "outstanding." One institute library was rated "fair" to "poor" by 56.7 percent of the participants. One-fifth of the participants in one institute did not respond to this item.

Because of the nature of the subject matter of some institutes, library resources were not of major importance to their programs. Most of the institutes, however, provided a small, but highly select collection of references in the classroom. Participants who commented on these rated them good to poor. Several claimed references were not always available at the time they could use them. Reference work was important in some of the institutes. According to some of the participants, a poor assortment of references made it difficult for them to complete the required reading. Library hours did not satisfy some participants.

Laboratory and classroom facilities were rated "good" or "outstanding" by three-fourths of the participants. These facilities were rated "good" or "outstanding" by 100 percent of the participants at one institution (Table III b). Some facilities were not air conditioned and this led to some discomfort.

Instructional equipment was rated "good" or "outstanding" by four-fifths of the participants.

Facilities for independent and group study were rated "good" or "outstanding" by the majority of participants. However, at one institution, the facilities for group study were rated "fair" and below by 72.4 percent of the participants (Table III d and e).

Living accommodations were "good" or "outstanding" for three-fifths of the participants. Some institutions obviously did a better job of satisfying this need than others (Table III f). Directors reported that they were all given good cooperation by the directors of housing at their institutions. All of the institutions provided their newer dormitories for these groups.

Conditions within dormitory facilities resulted in some dissatisfaction in some places. Typical comments about living conditions at one institution were: living conditions poor; chaotic, noisy, not; living accomodations not suited to family living; living quarters dirty; dining hall floor usually dirty; long lines for meals, one-half hour wait; dining hall-dormitory staff insolent; too expensive; charged $68.00 more (for the institute period) for a room in a dorm with no air conditioning or elevators; no air conditioning.

Dormitories at some institutions were one-half to three-fourths of a mile from the buildings in which the institutes were held. This made for a considerable amount of walking for some participants who did not have automobiles. Those with automobiles experienced parking problems (and parking tickets) at some schools.

Several participants at each institute commented that families should either be left at home or quartered separately from those without families. Others said they would not attend an institute without their families. Most of the participants with families were generally unhappy with dormitory living conditions. Several suggested that they be permitted to secure housing

off-campus. Participants with children found that the stipend seldom covered the costs. This group was interested in better provisions (kitchen facilities) for families. However, most of these people agreed that the experience of living together was valuable. The participants thought that the dormitory fellowship and professional discussions were quite valuable.

Some institutions grouped families on certain floors of a dormitory, single men on other floors, and single women on still other floors. This arrangement seemed to work more satisfactorily than the random assignment of participants to dormitories. Space was assigned on the basis of family size – two to a room.

Few institutions had young children in mind when they erected their dormitories. Consequently, children were not easily provided for at some schools. Some, however, did organize supervised activity periods for two or three hours a day. A nominal fee ($5.00 per week) was charged by the supervising agency to support this program. Parents who commented on this feature praised it highly. It gave the children something to do and freed the mother for other activities.

Less than one-half of the participants rated the provisions for recreation "good" or "outstanding" (Table III g). A sizeable majority rated them "fair" to "poor" at two institutions. Large institutions, located in or near large cities, appeared to have a decided advantage in this respect. Most institutes provided lists of events held on-campus and in the community, but in most instances these did not interest the participants or they did not have time to attend. The heavy work load was cited most frequently as the reason for nonattendance.

Some institutes provided picnics or socials of one sort or another. These were favorably received. Most participants agreed that such an event should be scheduled early in the institute to help the wives, children, and participants to get acquainted. Dining hall personnel cooperated at some schools by preparing foods that could be served out-of-doors.

Fees were usually charged to cover the costs of coffee and donuts provided during break periods and for group events. Fees ranged from $1.00 to $10.00 at the different institutes. Payment of fees and attendance at events covered by the fees were optional at some schools.

At least one institute published a newsletter for participants at frequent intervals. This served to disseminate announcements, summarize important institute activities, and give the participants an opportunity to become involved in preparing public relations materials. One institute also sent notices to each participant's attendance and institute related activities to his home town newspaper. Group pictures and 35mm pictures of the institute proceedings were also popular. In the latter case, one participant usually served as cameraman throughout the institute. The others purchased copies of the slides they desired.

The Participants

Data on participants were collected from the extensive application blanks used for all NDEA institutes. The data were to have been provided

to institute staffs and field consultants in mid-summer, but were still not available at the time of this writing.

PART II
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The 1966 NDEA Industrial Arts Institutes enrolled a highly select and capable group of teachers from many parts of the nation. These teachers were involved in an intensive and concentrated study of industry and its technology and of the professional aspects of providing such a study.

The principal purpose of the institutes was to improve the competencies of industrial arts teachers. On the basis of total participant response and in the judgment of the consultants, the institutes were immensely successful in attaining this objective.

The quality of instruction provided by institute faculties was generally good. There were, however, some exceptions. Participants were critical of instructors who were poorly prepared for or careless in their teaching assignments or who demonstrated a limited ability to deal with the participants on other than a teacher-student basis. The principal general complaint was that most of the institutes worked the participants too hard and provided too little time for contemplation and relaxation.

A variety of audiovisual materials was used in all of the institutes. The lecture continued to be the most common method of presentation. According to the participants, opportunities for the application of instruction in laboratories were somewhat inadequate.

Living accommodations were generally satisfactory for participants without dependents. Some who brought their families were unhappy with the hardships of maintaining family life in a dormitory.

Observations of the consultants and the evidence accumulated from the 1966 Summer Industrial Arts Institutes seem to indicate that the participants considered themselves highly fortunate in being selected. A number of participants expressed to the consultants their appreciation for the opportunity of sharing in the fruitful benefits of this advanced study and proposed that the institutes be continued. Industrial arts teacher educators in general acclaimed the institutes as the most likely means for upgrading and revitalizing the teaching of industrial arts.

The consultants believe that the institutes for industrial arts should be greatly expanded for 1967. The success of the five initial institutes plus the interest manifested through several thousand inquiries and the actual receipt of over 3,100 applications, seem to warrant the funding of several times the number conducted in 1966.

Recommendations

1. The profession should identify some of the major needs in industrial arts education and encourage institutes to prepare and submit proposals to fill these needs.

2. Institutes that plan to offer institutes should anticipate the problems of time, effort, and expense involved in reading applications and selecting participants and make the necessary provisions. Selection teams should consist of at least three qualified persons to insure that the most qualified participants are chosen.

3. Published descriptions of institutes should be sufficiently detailed that their nature will be clearly understood. Although it is difficult to do, when purposes of an institute are stated, some indication of the degree of emphasis (or time) to be placed on each objective should be given. In this way, readers might better ascertain whether or not an institute has the potential to meet their needs.

4. Participants should be selected from as wide a geographical area as feasible so as to permit more widespread sharing of the benefits derived. Where possible two participants who live and teach within a 50-100 mile distance of one another should be selected so that they may work together in applying the benefits of an institute in the following school year. Women industrial arts teachers should be encouraged to apply for admission to appropriate institutes since they also teach this subject in several states.

5. Directors should weigh carefully the advantages and disadvantages of assuming teaching responsibilities since administrative and supervisory duties place unpredictable demands upon their time. The guidelines for submitting proposals should spell out these duties so that future directors may obtain an accurate image of their responsibilities.

6. Directors should make specific plans to check and insure that the intended quarters for instructional facilities, living accommodations, and recreational facilities are available. Consideration should be given to employing qualified hotel management consultants and professional conference directors to give recommendations on the kinds of facilities and services to be provided. In this connection, a simple set of standards should be included in the guidelines and proposals should indicate how these standards will be met. Standards should include: living quarters square footages per person; air conditioning of living quarters and classrooms; living costs; privacy; accommodations for children; parking facilities; and the like.

7. Usually, two participants to a dormitory room should be the maximum in order that conditions conducive to good study may be maintained. Living quarters as well as classrooms should be air conditioned or well ventilated.

8. Participants with families should be housed on a floor(s) of a dormitory, or preferably in apartments or houses suited for family living. The wisdom of strongly discouraging families from accompanying participants should be carefully considered where family housing is not available.

9. Participants and their families should be assembled in a get-acquainted session the first or second night of the institute. At this time, orientation to recreation, rules and regulations of the institution, the work of the institute and the participants responsibilities, dress, and the like should be provided. Additional socials should be held from time to time during the course of the institute. The advantages of having the administrators of an institution meet with the participants should not be overlooked.

10. Some form of supervised activity should be provided (at a nominal charge) by the host institution for children of participants. Tourist and recreational information should be provided.

11. Institute directors should insure that the amount of work required and the credit given are reasonable. Participants expect to work hard and long, but the demands upon their time should not exceed approximately 50 clock hours per week. Formal instruction, including laboratory sessions should not exceed 6-7 hours per day. Lecture-discussion type sessions should not exceed two hours and no more than two such sessions should occur in a single day. Since participants need time for study, research, and thinking, these periods, when scheduled, should not be less than two hours long. Where feasible, the schedule of classes, study periods, and grading systems should be cooperatively planned by the staff and the participants.

12. Class schedules should provide time for instruction and practice in developing sample curricula, lesson plans, or other instructional materials that will demonstrate the participants' understanding of the applications of the instruction provided.

13. Bibliographies of texts and references and a list of other materials to be used should be provided the participants prior to their arrival at the institute. This would permit some participants to provide themselves with these materials and help to relieve the problems caused by the limited number of certain volumes in demand.

14. References should be accessible outside of the regular class hours. This may be accomplished by providing keys to the reference room or by placing the material on reserve in the main library (which should be open after class hours). Furthermore, more than one copy of frequently used references should be provided.

15. Participants expect to receive much literature, reference lists, etc. and directors should be prepared to provide them. When possible, handouts should be prepared in such a manner that they may readily be reproduced or converted into overhead projector transparencies.

16. Some form of weekly evaluation should be conducted to aid participants and staff in recognizing institute strengths and weaknesses. Evaluation forms, if used, should be unsigned.

17. Every effort should be made to insure that guest speakers are familiar with the objectives of an institute.

18. Industrial visits should be carefully planned and arranged to provide opportunities to study industry rather than simply tour facilities. This

means that industrial personnel and participants must be thoroughly oriented to the purposes of visits. Other considerations are:

(a) The institute should bear the cost of overnight lodging.

(b) Sufficient time should be provided for ablutions, meals and rest stops.

(c) Travel should not exceed four or five days for any one trip.

19. Instruction should reflect the latest and best in educational theory and practice. On-site observations indicated that attention should be given to the following:

(a) Presentations should be varied. Sensory aids such as charts, ddrawings, pictures, projectors (slide, motion, opaque, overhead), tapes, and TV should be used whenever possible.

(b) Presentations, where feasible, should be followed by seminars in which the important concepts and problems are identified. Participants might be organized into groups of six to work for six minutes in identifying six problems or concepts to be discussed by the group. Seminars should be summarized to identify the important points.

(c) Participants should be seated in a "U" or other conference type shape when feasible.

(d) Participants should be encouraged to share their special skills and knowledge where these may contribute to the attainment of objectives.

(e) Directors should insure that recommended levels of illumination are maintained in all instructional and study areas.

(f) Participants and instructors should wear identification (name) cards.

(g) Safety goggles and other necessary protective devices should be worn in laboratories at all times.

(h) Dress should reflect good professional grooming.

20. Typists should be provided where typewritten reports are a required activity of an institute. Typists are necessary only a few days before reports are due. This service would save the participants much time that could better be spent in study.

21. Newsletters, photographs and other public relations materials should be prepared in each institute to serve as an example to be emulated by the participants when they return to their schools. Many participants will want a pictorial history of their institute. Therefore, during the first day, consideration should be given to planning and assigning responsibilities for taking and distributing pictures.

22. Participants should be encouraged to prepare an institute summary report for distribution to teachers in their respective states. This report should inform readers of the new knowledge, concepts, problems, methods, and benefits derived from the institute.

23. Consideration should be given to providing some form of follow-up of participants to better evaluate the effectiveness of institutes.

24. Superior institutes should be repeated in succeeding years.

25. Since many participants expressed the desire to attend another institute, consideration should be given to permitting attendance at more than one institute. Some types of institutes might better attain their objectives if the participants could return the following summer to review their year's experience and work for greater depth.

26. Directors and participants upon completion of institute programs should be requested to file recommendations concerning ways of effecting improvement in institute operation. While standardized participant evaluation questionnaires are satisfactory for collecting much information, consideration should be given to developing supplementary pages that better identify the characteristics peculiar to industrial arts.

27. New directors should have opportunities to examine compendiums of organizational and management materials developed by directors who have had experience conducting institutes.

28. To find the better way of conducting institutes consideration should be given to running a two or three day conference, seminar or institute for new and potential directors. The scope of such a program of activity should stem from planning efforts that reflect cooperation between program administrative personnel and participants.

29. Consultants (evaluators) should be chosen well in advance of announced starting dates for institutes. Directors should know the names of personnel likely to visit the program and they in turn should be encouraged to forward specimen copies of most organizational and instructional materials to members of the team of consultants.

30. To make it easier for consultants to effectively discharge their responsibilities, they should be brought together to:

(a) Become oriented to their duties and responsibilities.

(b) Prepare guidelines for the preparation of the required written report.

(c) Develop criteria for on-site observations.

(d) Develop a supplement to the participant questionnaire.

(e) Plan the schedule of visitations. (Consideration should be given to visiting each institute twice, once in the third week and again in the fifth.)

31. Summary data on participants should be made available by mid-institute period at the latest.

TABLE I

PERCENT OF PARTICIPANT RESPONSES RATING
KNOWLEDGE AND SKILLS IMPARTED BY INDUSTRIAL ARTS INSTITUTES

ASPECTS	RATINGS	PERCENT					AVERAGES N = 143
		INSTITUTE					
		A	B	C	D	E	
a. Success in increasing knowledge and skill in subject area.	Outstanding	44.8	43.3	50.0	54.1	30.0	44.1
	Good	37.9	50.0	40.0	41.7	46.7	43.3
	Fair	10.3	6.7	10.0	4.2	20.0	10.5
	Marginal	3.5	0	0	0	3.3	1.4
	Poor	3.5	0	0	0	0	0.7
b. Success in identification of content material essential to effective instruction	Outstanding	20.7	33.3	53.3	58.3	26.7	37.8
	Good	44.8	63.4	40.0	41.7	50.0	46.8
	Fair	20.7	3.3	6.7	0	23.3	12.6
	Marginal	10.3	0	0	0	0	2.1
	Poor	0	0	0	0	0	0
	No Response	3.5	0	0	0	0	0.7
c. Success in increasing knowledge and skill in improved instructional methodology	Outstanding	10.3	6.7	66.7	37.5	36.7	31.5
	Good	41.4	40.0	33.3	50.0	53.4	43.3
	Fair	27.6	43.3	0	12.5	3.3	17.5
	Marginal	13.8	10.0	0	0	3.3	5.6
	Poor	6.9	0	0	0	3.3	2.1
d. Success in increasing knowledge and skill in improved Instructional media	Outstanding	13.8	6.7	46.7	25.0	43.3	27.3
	Good	41.4	60.0	50.5	45.8	50.0	49.6
	Fair	24.1	23.3	0	29.2	6.7	16.1
	Marginal	20.7	6.7	0	0	0	5.6
	Poor	0	0	3.3	0	0	0.7
	No Response	0	3.3	0	0	0	0.7
e. Success in increasing knowledge and skill in curriculum improvement and/or innovations	Outstanding	24.1	30.0	86.7	91.7	53.4	56.0
	Good	34.5	63.3	13.3	8.3	33.3	31.4
	Fair	27.6	6.7	0	0	6.7	8.4
	Marginal	6.9	0	0	0	3.3	2.1
	Poor	0	0	0	0	3.3	0.7
	No Response	6.9	0	0	0	0	1.4

TABLE II

OVERALL QUALITY OF
INDUSTRIAL ARTS INSTITUTE PRESENTATIONS

PRESENTATIONS	RATINGS	PERCENT INSTITUTE A	B	C	D	E	AVERAGES N = 143
a. By Institute Faculty	Outstanding	24.1	10.0	50.0	25.0	20.0	25.9
	Good	37.9	66.6	43.4	70.8	46.7	52.4
	Fair	17.3	16.7	3.3	4.2	23.3	13.3
	Marginal	6.9	6.7	3.3	0	3.3	4.2
	Poor	10.3	0	0	0	6.7	3.5
	No Response	3.5	0	0	0	0	0.7
b. By Guest Speakers	Outstanding	37.9	70.0	30.0	54.1	33.3	44.7
	Good	34.5	30.0	63.3	45.9	46.7	44.1
	Fair	20.6	0	6.7	0	16.7	9.1
	Marginal	3.5	0	0	0	3.3	1.4
	Poor	0	0	0	0	0	0
	No Response	3.5	0	0	0	0	0.7
c. Conduct of Laboratories, Seminars, Workshops.	Outstanding	3.5	13.3	43.4	58.3	10.0	24.5
	Good	31.1	63.4	43.3	37.5	46.7	44.7
	Fair	48.2	13.3	10.0	4.2	36.7	28.1
	Marginal	10.3	6.7	0	0	3.3	4.2
	Poor	6.9	3.3	0	0	3.3	2.8
	No Response	0	0	3.3	0	0	0.7
d. Choice of Field Trips	Outstanding	48.3	46.7	50.0	29.2	3.3	35.6
	Good	48.2	40.0	40.0	58.3	13.3	39.2
	Fair	3.5	13.3	10.0	8.3	36.7	14.7
	Marginal	0	0	0	4.2	26.7	6.3
	Poor	0	0	0	0	16.7	3.5
	No Response	0	0	0	0	3.3	0.7
e. Conduct of Field Trips	Outstanding	41.4	30.0	56.7	16.7	3.3	30.1
	Good	55.1	46.7	36.6	62.4	26.7	44.7
	Fair	3.5	20.0	6.7	16.7	50.0	19.6
	Marginal	0	3.3	0	4.2	10.0	3.5
	Poor	0	0	0	0	6.7	1.4
	No Response	0	0	0	0	3.3	0.7

TABLE III

FACILITIES AND PHYSICAL ARRANGEMENTS
FOR INDUSTRIAL ARTS INSTITUTES

FACILITIES	RATINGS	PERCENT					AVERAGES N = 143
		INSTITUTE					
		A	B	C	D	E	
a. Library	Outstanding	13.8	43.3	13.3	29.2	13.3	22.3
	Good	41.3	30.0	46.7	58.3	30.0	40.6
	Fair	10.4	23.4	40.0	12.5	30.0	23.8
	Marginal	6.9	3.3	0	0	13.4	4.9
	Poor	6.9	0	0	0	13.3	4.2
	No Response	20.7	0	0	0	0	4.2
b. Laboratories, Classrooms, Workshops	Outstanding	6.9	33.4	3.3	70.8	10.0	23.1
	Good	62.0	50.0	46.7	29.2	70.0	52.5
	Fair	27.6	10.0	40.0	0	20.0	20.2
	Marginal	0	3.3	3.3	0	0	1.4
	Poor	3.5	0	6.7	0	0	2.1
	No Response	0	3.3	0	0	0	0.7
c. Instructional Equipment	Outstanding	13.8	36.7	23.4	62.5	56.7	37.8
	Good	37.9	46.4	56.6	37.5	36.6	43.3
	Fair	44.8	13.3	20.0	0	6.7	17.5
	Marginal	0	3.3	0	0	0	0.7
	Poor	3.5	0	0	0	0	0.7
	No Response	0	0	0	0	0	0
d. Independent Study	Outstanding	3.5	30.0	20.0	62.5	13.3	24.5
	Good	51.6	43.3	53.3	25.0	56.7	46.8
	Fair	20.7	23.3	26.7	8.3	16.7	19.6
	Marginal	6.9	0	0	4.2	3.3	2.8
	Poor	6.9	3.3	0	0	10.0	4.2
	No Response	10.4	0	0	0	0	2.1
e. Group Study	Outstanding	0	16.7	30.0	41.7	6.7	18.2
	Good	27.6	56.6	50.0	50.0	40.0	44.7
	Fair	20.7	20.0	13.4	8.3	40.0	21.0
	Marginal	17.2	6.7	3.3	0	3.3	6.3
	Poor	20.7	0	0	0	10.0	6.3
	No Response	13.8	0	3.3	0	0	3.5
f. Living Accommodations	Outstanding	0	23.4	13.3	50.0	20.0	20.3
	Good	6.9	46.6	40.0	41.7	60.0	39.1
	Fair	41.3	13.3	23.4	8.3	3.3	18.2
	Marginal	3.5	3.3	3.3	0	13.4	4.9
	Poor	44.8	6.7	3.3	0	3.3	11.9
	No Response	3.5	6.7	16.7	0	0	5.6

TABLE III (continued)

FACILITIES	RATINGS	PERCENT INSTITUTE A	B	C	D	E	AVERAGES N = 143
g. Recreation	Outstanding	0	30.7	3.3	8.4	13.3	12.6
	Good	17.2	50.0	23.3	45.8	43.3	35.6
	Fair	10.4	10.0	26.7	33.3	33.4	22.4
	Marginal	3.5	3.3	23.3	4.2	10.0	9.1
	Poor	62.0	0	16.7	8.3	0	17.5
	No Response	6.9	0	6.7	0	0	2.8

TABLE IV

RELATIVE AMOUNT OF TIME APPORTIONED
FOR SEVERAL INSTRUCTIONAL METHODS

METHODS	RATINGS	PERCENT RESPONSE INSTITUTE A	B	C	D	E	AVERAGES N = 143
a. Lecture	Not enough	0	6.6	0	0	0	1.4
	About right	31.2	46.7	56.7	95.8	30.0	50.3
	Too much	68.8	46.7	43.3	4.2	70.0	48.3
b. Audio-Visual Presentations	Not enough	27.6	13.3	6.7	33.3	10.0	17.5
	About right	72.4	73.4	93.3	66.7	90.0	79.7
	Too much	0	13.3	0	0	0	2.8
c. Laboratories, Seminars, Etc.	Not enough	65.5	40.0	30.0	20.8	56.6	43.3
	About right	34.5	56.7	70.0	79.2	43.4	56.0
	Too much	0	3.3	0	0	0	0.7
d. Field Trips	Not enough	51.7	30.0	13.3	4.2	90.0	39.2
	About right	48.3	70.0	83.4	95.8	10.0	60.1
	Too much	0	0	3.3	0	0	0.7
e. Individual Study Periods	Not enough	65.3	26.7	40.0	20.8	66.7	44.8
	About right	31.2	73.3	60.0	79.2	33.3	54.5
	Too much	3.5	0	0	0	0	0.7
f. Free Time	Not enough	58.6	20.0	73.3	25.0	90.0	54.5
	About right	37.9	76.7	13.3	70.8	10.0	40.6
	Too much	0	0	6.7	0	0	1.4
	No Response	3.5	3.3	6.7	4.2	0	3.5

TABLE V

RELATIVE PROPORTIONS OF INSTITUTES DEVOTED TO INDUSTRIAL ARTS SUBJECT MATTER AND INSTRUCTIONAL METHODOLOGY

INSTRUCTIONAL PROPORTIONS	RATINGS	PERCENT					AVERAGES N = 143
		INSTITUTE					
		A	B	C	D	E	
a. Devoted to Subject area	Not enough	24.2	13.3	13.4	0	30.0	16.8
	About right	65.5	86.7	80.0	100	66.7	79.0
	Too much	10.3	0	3.3	0	3.3	3.5
	No Response	0	0	3.3	0	0	0.7
b. Devoted to Instructional Methodology	Not enough	51.7	33.3	3.3	33.3	13.4	26.6
	About right	44.8	60.0	86.7	66.7	83.3	68.5
	Too much	0	3.4	6.7	0	3.3	2.8
	No Response	3.5	3.3	3.3	0	0	2.1

TABLE VI

EFFECTIVENESS OF INDUSTRIAL ARTS INSTITUTES IN IMPROVING COMPETENCIES AS A TEACHER

RATING	PERCENT					AVERAGES N = 143
	INSTITUTE					
	A	B	C	D	E	
Outstanding	36.1	33.3	40.0	91.7	50.0	48.2
Good	39.6	66.7	60.0	8.3	43.4	44.8
Fair	13.8	0	0	0	3.3	3.5
Marginal	3.5	0	0	0	0	1.4
Poor	3.5	0	0	0	3.3	1.4
No Response	3.5	0	0	0	0	0.7

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